



NORSK SENTER FOR  
MARITIM MEDISIN

# Norsk senter for Maritim Medisin

MUF Kiel 24.11.2015

Agnar Tveten

Leder Radio Medico Norway

Norsk senter for Maritim Medisin

Haukeland Universitetssykehus

# Radio Medico Norway



# The public medical service for seafarers

- Radio Medico Norway (RMN) is the official maritime telemedical assistance service for seafarers in Norway.
- RMN is a part of the clinical activity at Norwegian Centre for Maritime Medicine (NCMM).
- NCMM is the Norwegian center of excellence in maritime medicine, and a part of department of occupational health at Haukeland University Hospital in Bergen.



Radio Medico Norway is the Norwegian maritime telemedical assistance service. The service provided is a public service in English and Norwegian, free of charge and available 24/7. The advices provided ranges from medical emergencies, general practice and specialist care to guidance on occupational matters. For more information, see [www.ncmm.no](http://www.ncmm.no).

Inmarsat : Satellite dialing number 32 via Eik earth station for contact on telex or telephone / Telephone : +47 51683601 / Telefax : +47 51683620

E-Mail : [advice@radiomedico.no](mailto:advice@radiomedico.no) / VHF or MF (Norwegian waters only) PAN-PAN-Medico

# On duty for seafarers every day since 1949

- The service provided is available 24/7, and Radio Medico Norway has been continuously on watch for seafarers since 1949.
- Out services is available in Norwegian and English.
- There are 5 doctors that share the watch, and they stand sentinel for one week at the time.



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# Integrated with the JRCC and CES

- JRCC and CES is situated in Stavanger and Radio Medico in Bergen.
- When necessary, the integration and cooperation with the joint rescue coordination centers, is an important part of the service.
- RMN uses the same application as the JRCC for log and decision support to have an efficient and reliable error free communication.
- This application is also used in the hospital as the patient journal for the RMN.





Operator at JRCC

# Free of charge

- As a public service RMN is free of charge for all ships, when to sea.
- Others may access the service through premade agreements.



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Users comes from all parts of maritime sector

# How to contact

- When you contact the Radio Medico Norway, this always happens through the coastal ground stations.
- The first approach should always be on telephone or voice (radio).
- It is also possible to use advanced telemedicine systems through mail and videoconference against RMN.



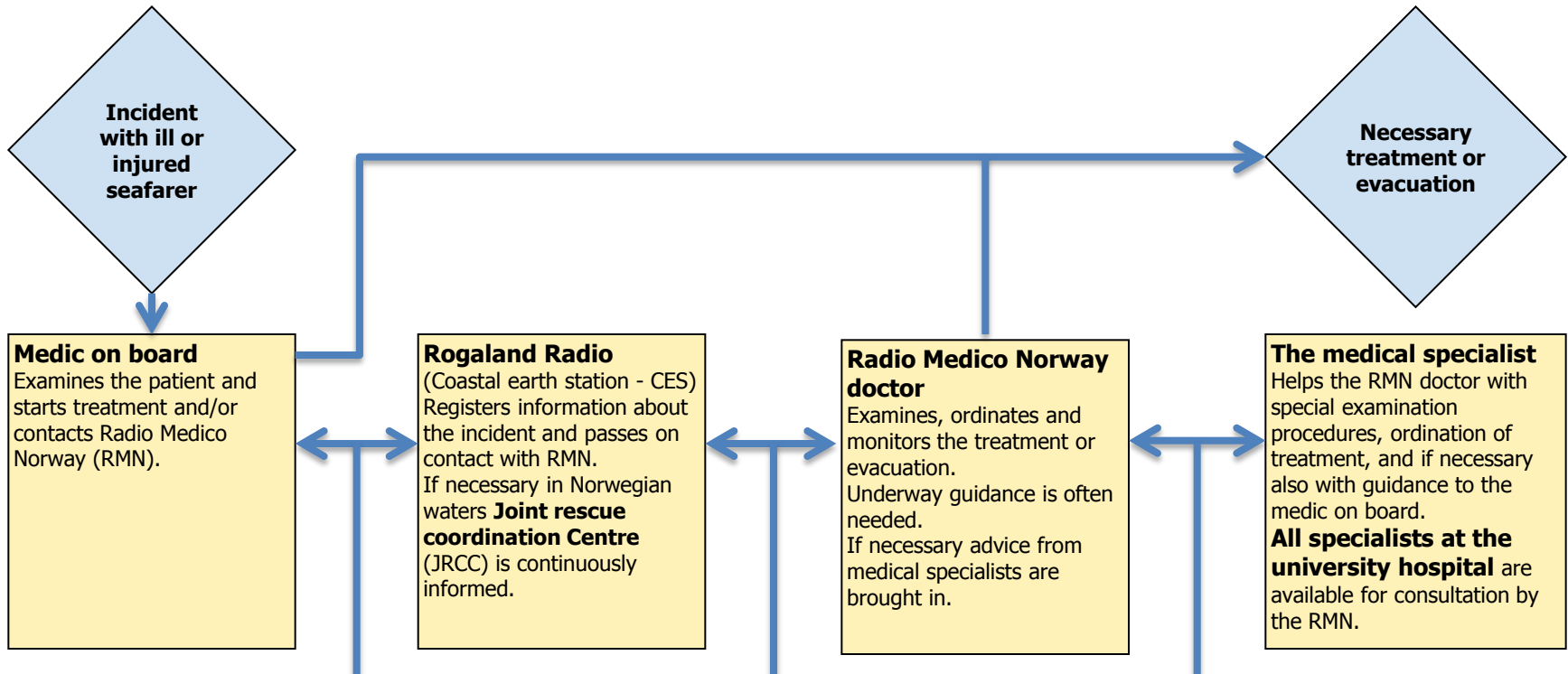
- Store and forward systems is sent as mail attachments.
- It is possible to stream medical information from electro medical equipment as a presentation through ordinary videoconference, and to stream medical information (i.e. ultrasound, ecg, stethoscope) as a presentation through videoconference protocols.



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# Radio Medico Norway incident



**Medic on board**  
Examines the patient and starts treatment and/or contacts Radio Medico Norway (RMN).

**Rogaland Radio**  
(Coastal earth station - CES)  
Registers information about the incident and passes on contact with RMN.  
If necessary in Norwegian waters **Joint rescue coordination Centre (JRCC)** is continuously informed.

**Radio Medico Norway doctor**  
Examines, ordines and monitors the treatment or evacuation.  
Underway guidance is often needed.  
If necessary advice from medical specialists are brought in.

**The medical specialist**  
Helps the RMN doctor with special examination procedures, ordination of treatment, and if necessary also with guidance to the medic on board.  
**All specialists at the university hospital** are available for consultation by the RMN.

The vessel may contact Rogaland Radio on a range of systems like radio (VHF/MF) or phone (GSM/Satellite). The initial contact will always be through voice (Phone). Systems like e-mail and videoconference are additional tools that may be used if present and decided by the RMN doctor. There are still only a few vessels that have videoconference solutions, and not everyone has access to e-mail either.

Rogaland Radio establishes contact with the RMN doctor on telephone. Incident information (position of the vessel, destination, name and class, medical responsible on board etc.) are shared through SARA which is the RMN journal system. SARA is also a decision support system and documentation tool for JRCC and CES. When necessary telephone or videoconference are arranged by Rogaland Radio.

RMN doctor contacts specialist on call. Initial contact is always established through the hospital calling or phone system. In addition the RMN doctor can share information with the specialist through mail, by giving access to the SARA journal. The RMN doctor is responsible for follow up of the patient and contact with the vessel. If appropriate he may also arrange for phone or videoconferences directly from the vessel to the specialist.

# Experiences with different communications

- Telephone

- Always the fastest way to establish contact
- The least time consuming way to do have a consultation
- Real-time and interactive
- Hard to get accurate descriptions
- Hard to verify doctors assumptions and captains understanding of instructions
- Challenging with language differences
- Still sometimes bad quality on sound



# Experiences with different communications

- E-mail
  - Detailed information about static conditions
  - Good for documentation
  - Can be of help to overcome language barriers
  - Slow
  - Not interactive. If questions are unclear or answered in an unclear this generates many mails
  - Good for documentation



# Experiences with different communications

- Video

- Largely increases the quality of dynamic information (Neurological exams, assessments of pain/ consciousness etc.)
- Gives better possibilities to supervise and guide when treatment procedures is performed on board
- Can be of help to overcome language barriers
- Still limited use on board ships
- Time consuming
- Both doctors and remote practitioner needs a certain level of training in using the equipment





# SARA

- Search and Rescue Application
- Utviklet av Christian Michelsen Research AS (CMR)
- SARA har lenge blitt benyttet av de norske hovedredningsentralene på Sola og i Bodø og de norske kystradiostasjonene
- I senere år har systemet blitt videreutviklet til også å kunne fungere som et medisinsk journalsystem for Radio Medico Norway

# SARA

- Alle henvendelser til Radio Medico Norway ble logget i SARA i 2014
- Informasjon om alder, kjønn, nasjonalitet, om sykdommen kunne karakteriseres som en yrkessykdom/skade, tentativ diagnose, behandling og råd gitt av vaktlegen ble skrevet inn i journalen

# SARA

SARA-MEDICO

File Encounter Ressurs Melding Søk Hjelp

2014-RMN-503 2014-RMN-538 2014-RMN-560 2014-RMN-573 2014-RMN-574 2014-RMN-575 2014-RMN-576 2014-RMN-577 2014-RMN-578 2014-RMN-579 2014-RMN-586 2014-RMN-592 2014-RMN-594 2014-RMN-595 2014-ERMN-65

### Fakta punkt

Nr: 2014-ERMN-65

**Fartøynavn:** ttttt

Hvor: Norsjøen vest f20 NM vest av Karmøy, Norwegian Exclud...

Pasient: Robert, McDuck

Medico lege: Dr. Dyregod

Anamnese

Sykehistorie-Nåvære...

Oppdater, angi tid Oppdater

### Detaljer: Fartøynavn

Eier: \_\_\_\_\_

Flaggstat: Angola

Registreringsnummer: LH3054

Kallesignal: le2305

MMSI: \_\_\_\_\_

KOMM - Mobiltilf: 123456789

KOMM - Satkom: \_\_\_\_\_

Type fartøy: Navy/Coastguard vessel

Operator: \_\_\_\_\_

Agent: \_\_\_\_\_

Avgangssted: \_\_\_\_\_

Komm- Andre: \_\_\_\_\_

Nytt fakta punkt Lukk Lagre

### Sjekkliste

Bare denne fase

N	B	U	A	Sjekkliste
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Innhenter Kapteinens vurdering av situasjonen
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Konferer AMK/lege/skip
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kontakter Tolk
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kontakter agent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kontakter MEDICO lege
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vurderer IMO rapport
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Informerer/kontakter VTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kontakter ambassade/Konsulat
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Kontakter SDIR
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Varsler SHT-Sjø
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Varsler LRS (Lokal/Hjemmehavn/Hordaland)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gjenoppta kontakt med skip

N B U A Supplerende sjekkliste

Uttar med tid Uttar Alarm Fjern Fjern alarm Ny Info

Fra: Malene Torsvik Kategori: \_\_\_\_\_

Til: \_\_\_\_\_

Tid: \_\_\_\_\_ Flagg: \_\_\_\_\_

### Meldinger

Vis kun Uteste HRS Tiltak/Sjekkliste/rapport Endringer Søk Tekst

Nr	Tid	Utført	Fra	Kategori	Sub Nr	Melding
	05.08 14.44	14.44	OPERATØR	Kontakt av...	2	Kontakt avsluttet
	14.44	14.44	OPERATØR	Kontakt o...	2	Kontakt opprettet
	14.44	14.40	OPERATØR	Kontakt av...	1	Kontakt avsluttet
	14.40	14.40	OPERATØR	Kontakt o...	1	Kontakt opprettet

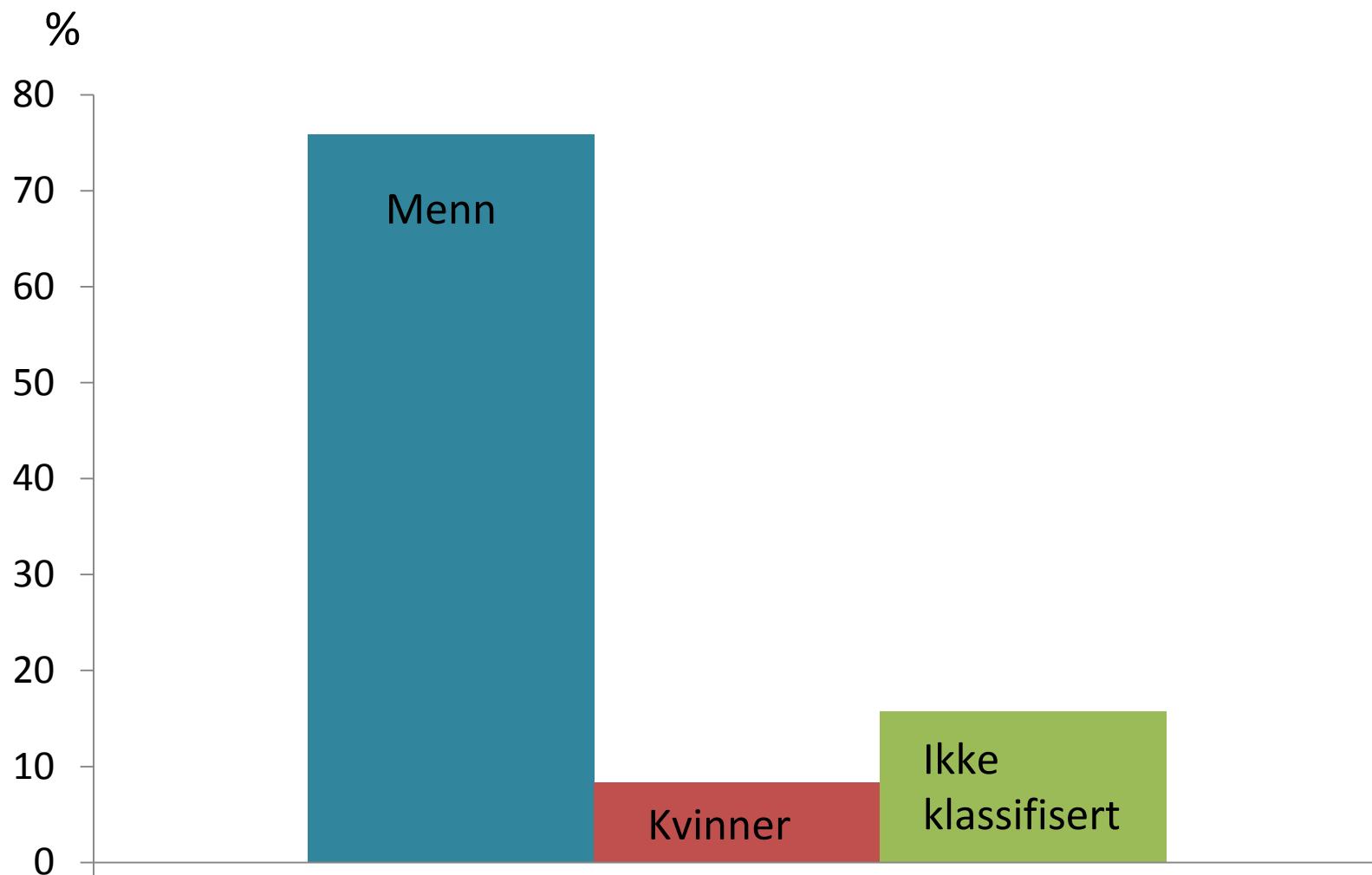
## Assistance calls 2014

Annual numbers of calls from ships to Norwegian authorities for assistance. Need for medical assistance is by far the most common reason that ships needs external assistance.

	Assistanse type													Totalt	Totalt	Totalt	Totalt	Totalt	Snitt siste 5 år
		Jan	Feb	Mar	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Des	2014	2013	2012	2011	2010	
Alle KRS	<b>Medico</b>	257	219	295	271	351	217	159	108	126	130	130	116	2379	2703	2213	1406	1393	2019
	<b>Motor/gir</b>	33	44	75	130	195	342	689	216	154	116	60	32	2086	1454	773	914	895	1224
	<b>Div. assistanse</b>	11	9	22	24	57	55	82	66	32	24	13	12	407	371	431	422	445	415
	<b>Grunnstøting</b>		7	20	28	29	53	104	46	27	21	10	7	352	303	242	215	256	274
	<b>Not/bruk/ror</b>	25	24	40	38	32	68	75	24	26	42	15	6	415	269	174	250	248	271
	<b>Lekkasje</b>	3	1	4	9	7	19	33	12	6	5	5	2	106	105	71	74	97	91
	<b>Sykdom/skade</b>	6	3	5	2	6	9	12	3	9	8	6	7	76	55	92	64	64	70
	<b>Etterlysning</b>	2	1	5	5	6	10	14	12	6	8	4	3	76	66	64	71	70	69
	<b>Brann</b>	5	2	6	4	3	10	22	14	5	3	2	1	77	74	56	63	59	66
	<b>Mann over bord</b>	4	1	1	6	2	2	10	7	1	4	3	3	44	45	46	45	27	41
	<b>Forlis</b>	1	2	2	1		8	4	3	3	6			30	12	23	53	60	36
	<b>Kollisjon</b>				1	1	1	2		3				8	7	4	12	15	9
Alle KRS	<b>Total</b>	347	313	475	519	689	794	1206	511	398	367	248	189	6056	5464	4189	3589	3629	4585

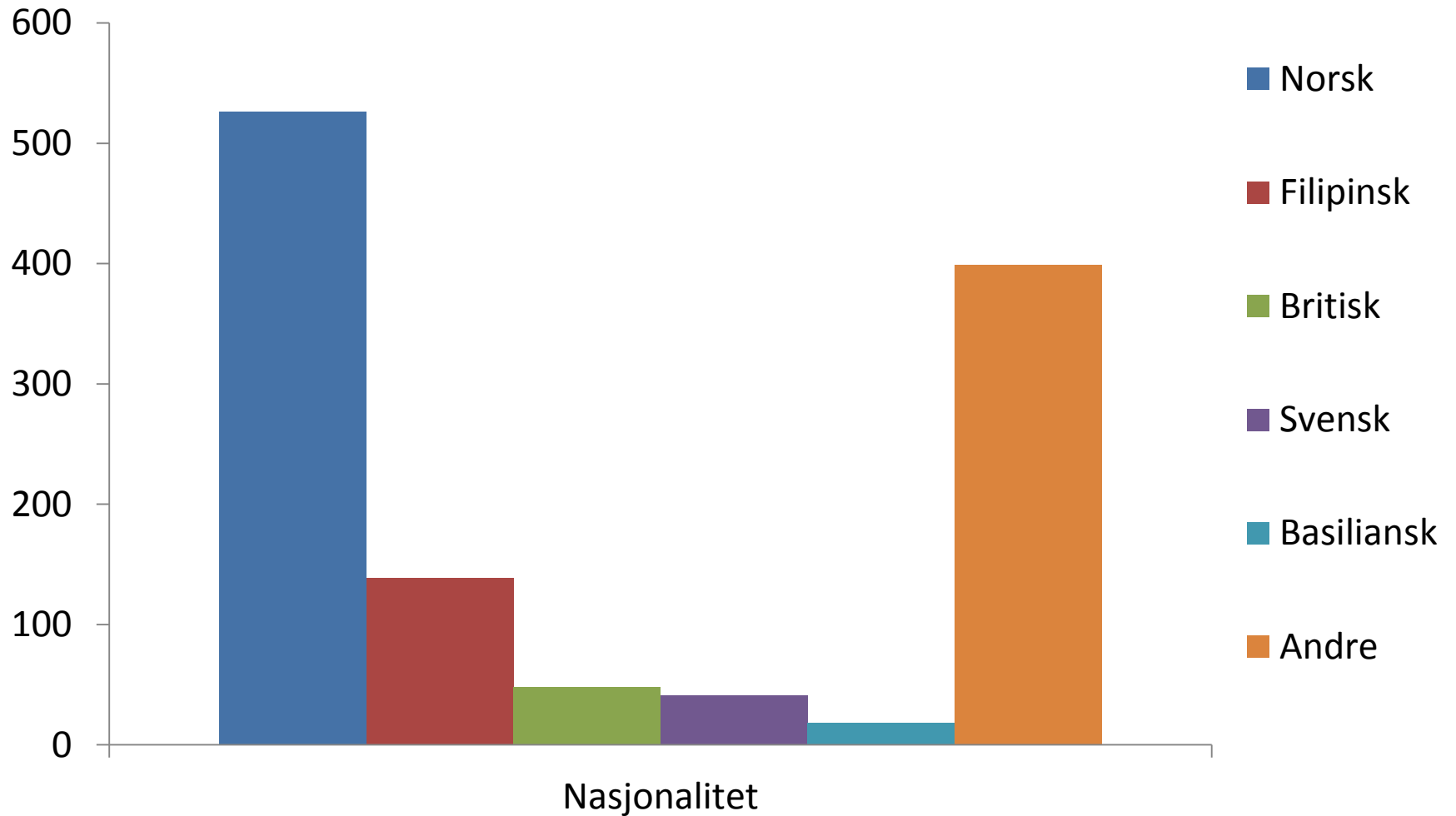


# Kjønn

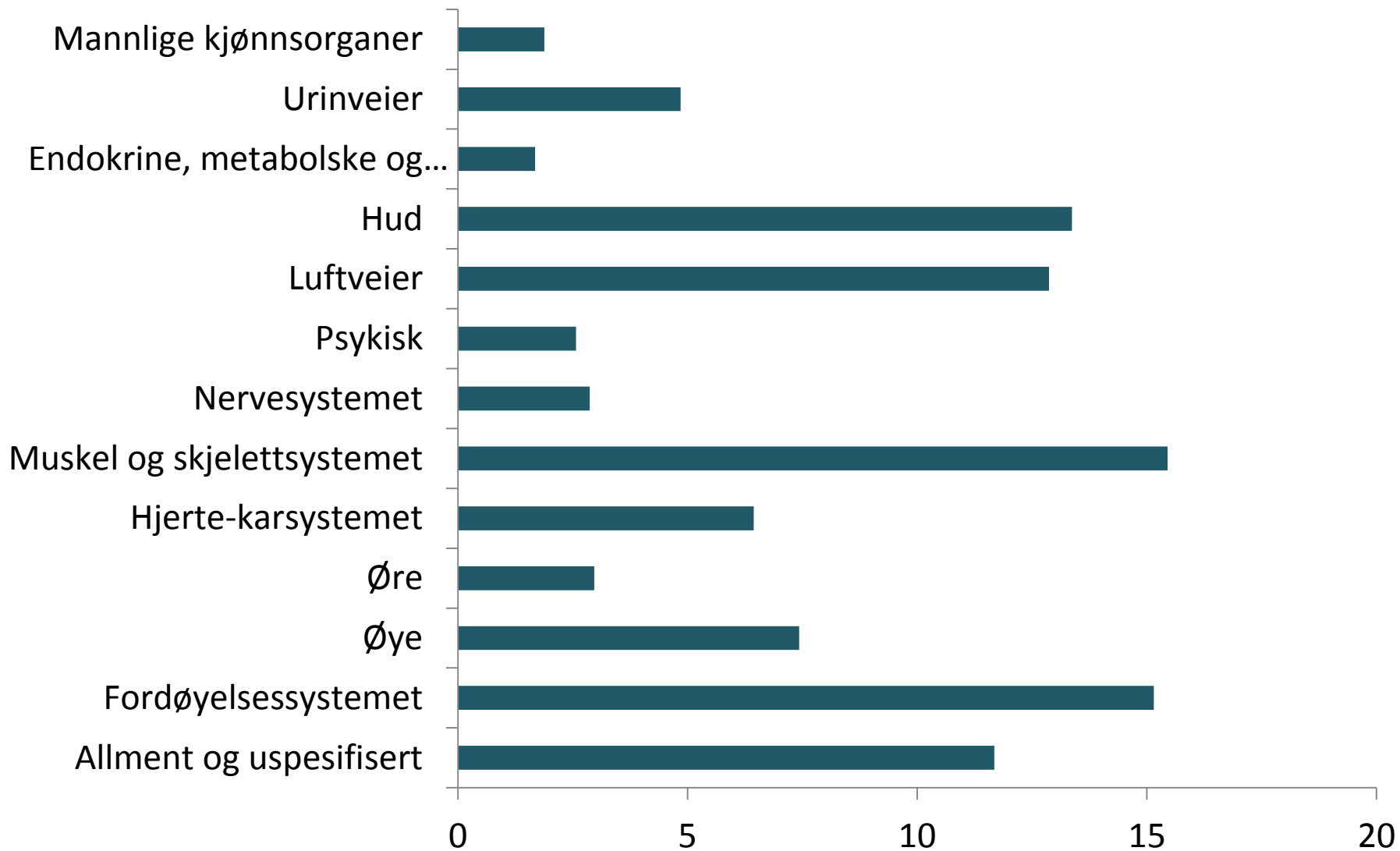




# Nasjonalitet

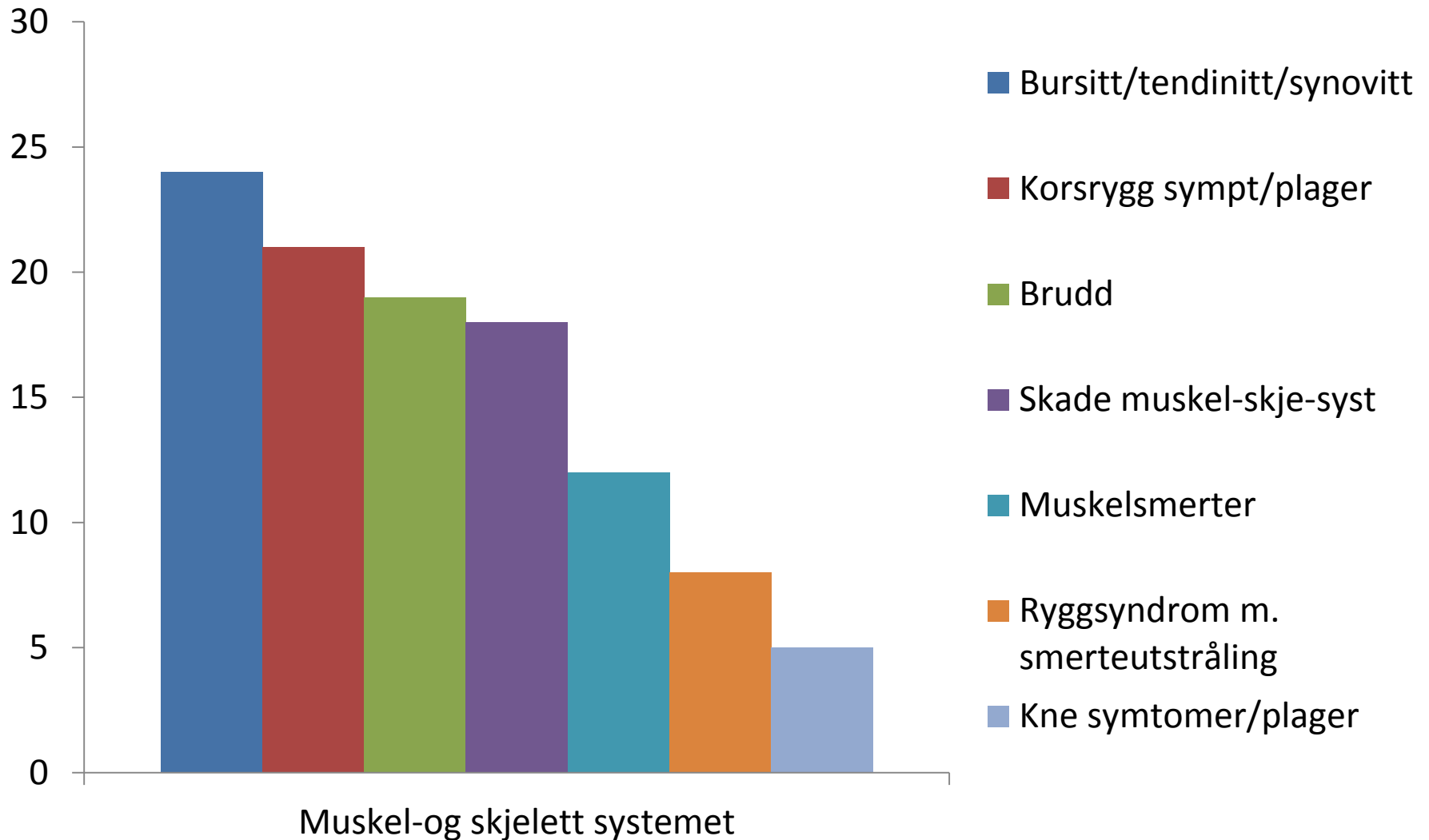


# Diagnose

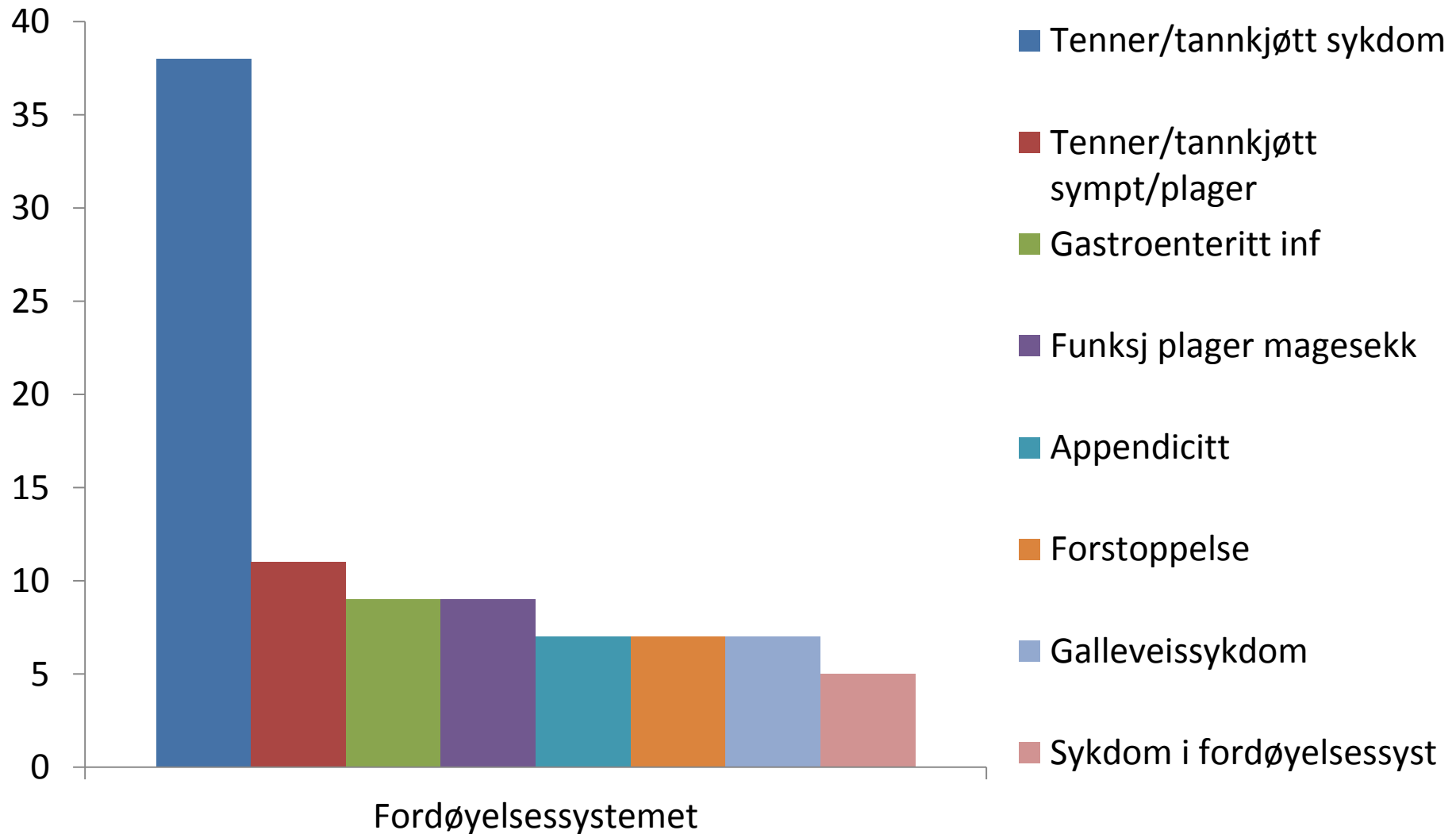




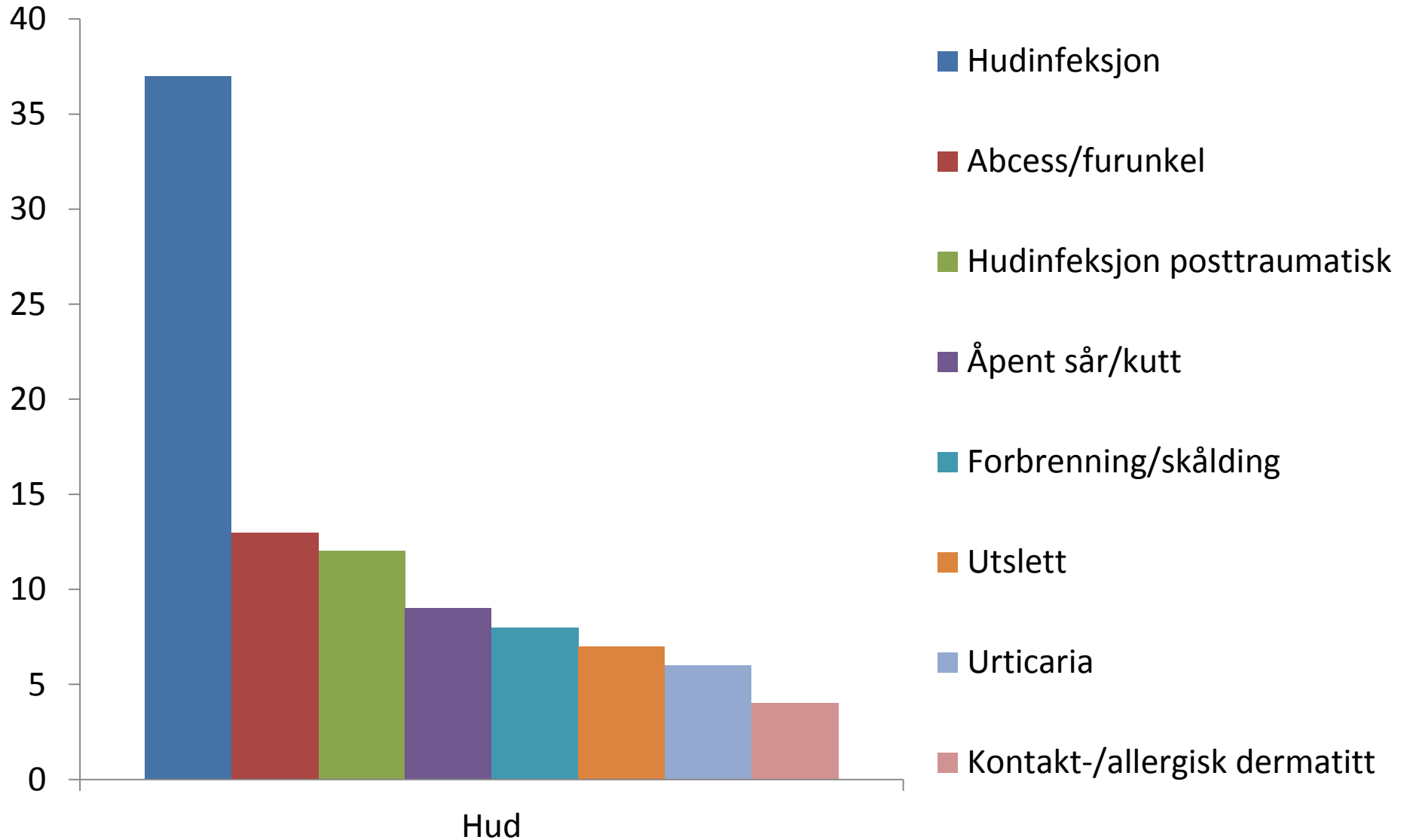
# Muskel-skjelett systemet



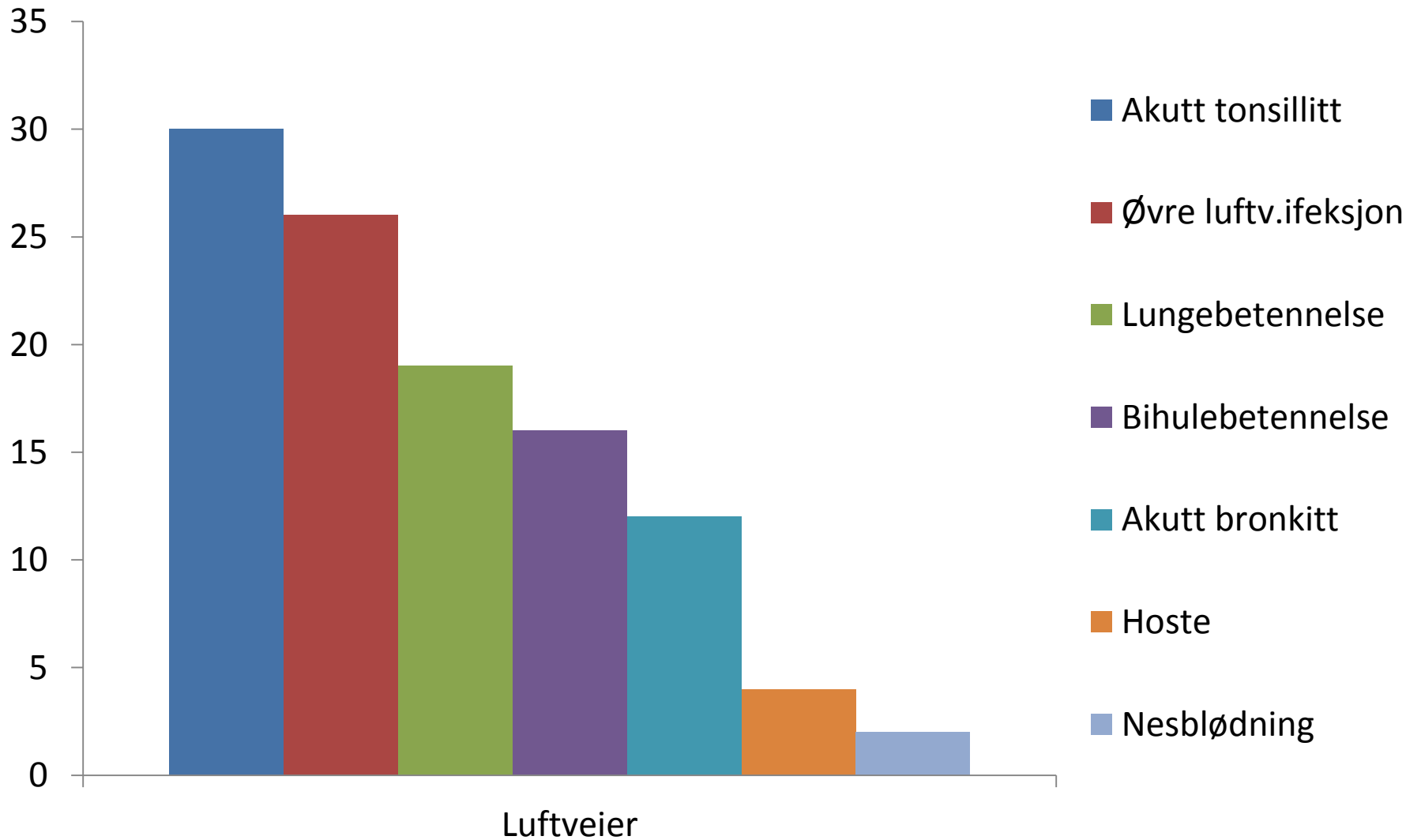
# Fordøyelsessystemet



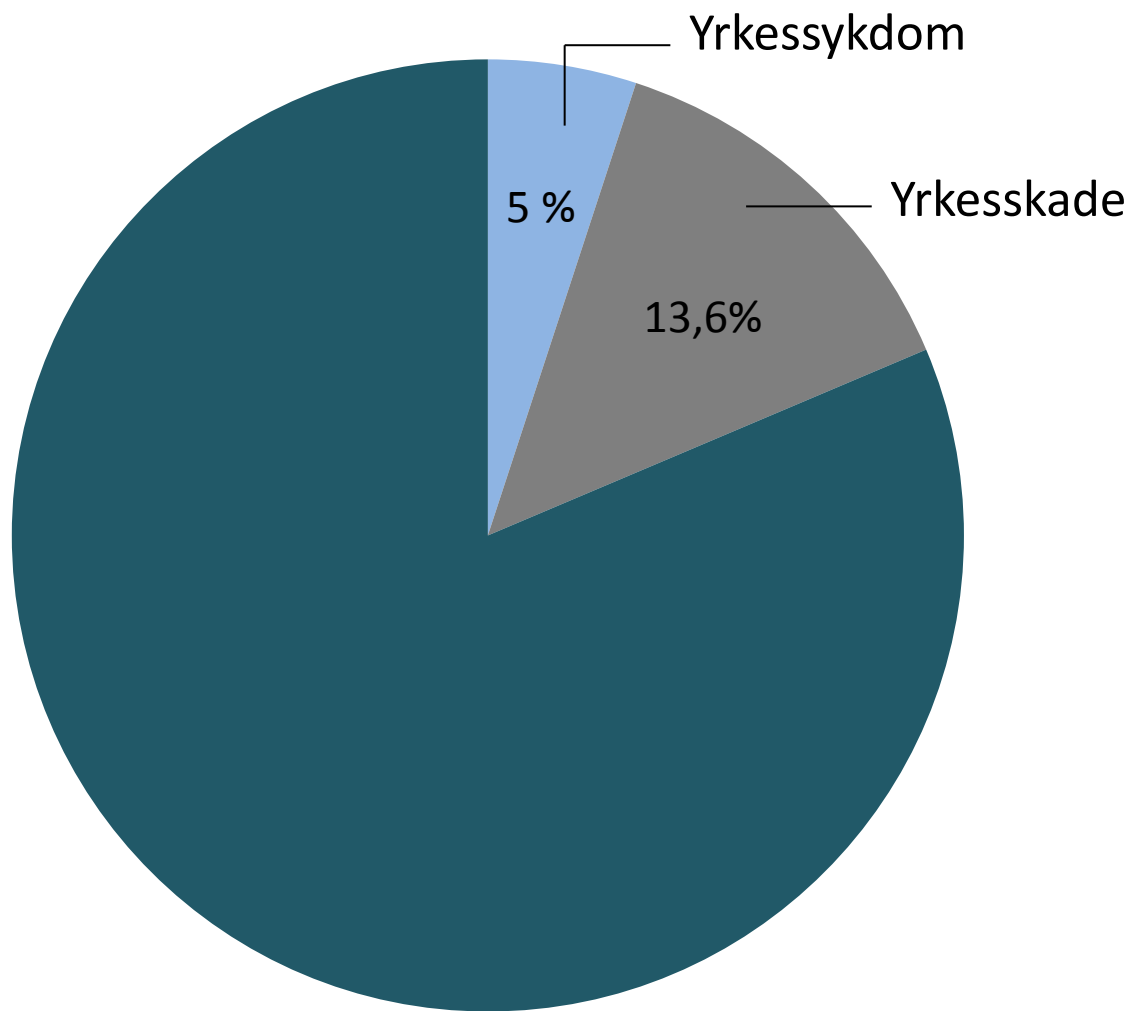
# Hud



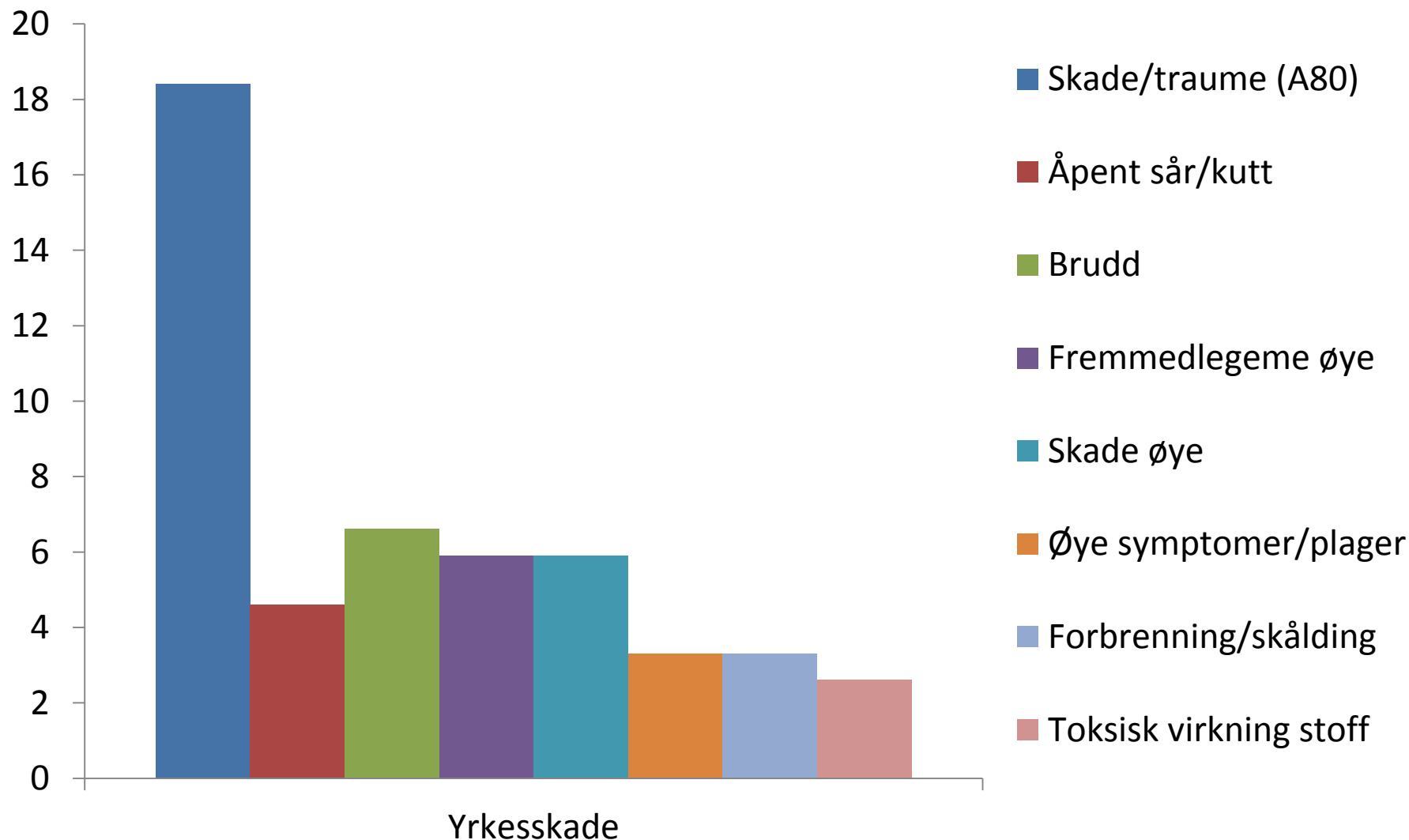
# Luftveier



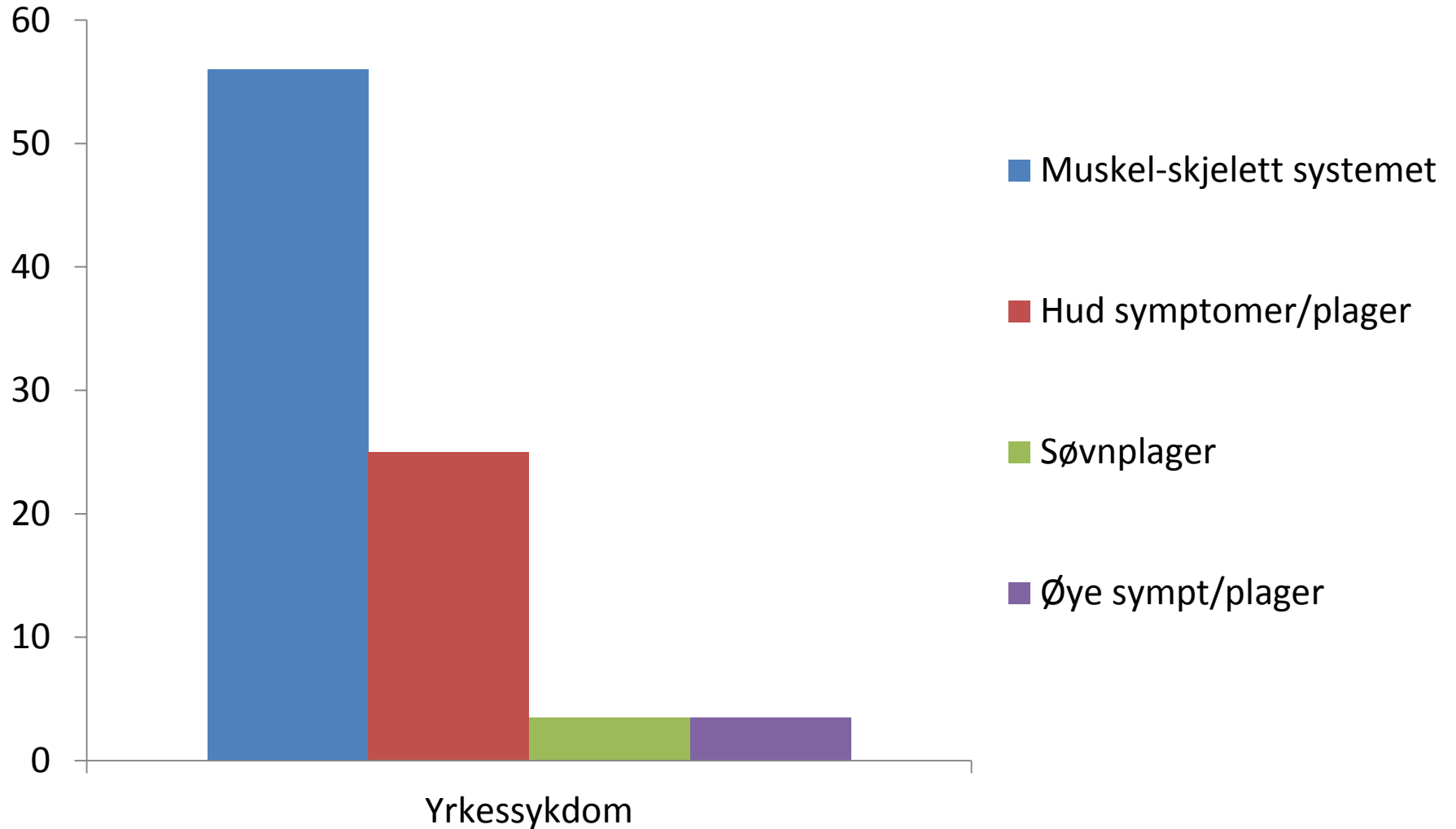
# Yrkessykdom og yrkesskade



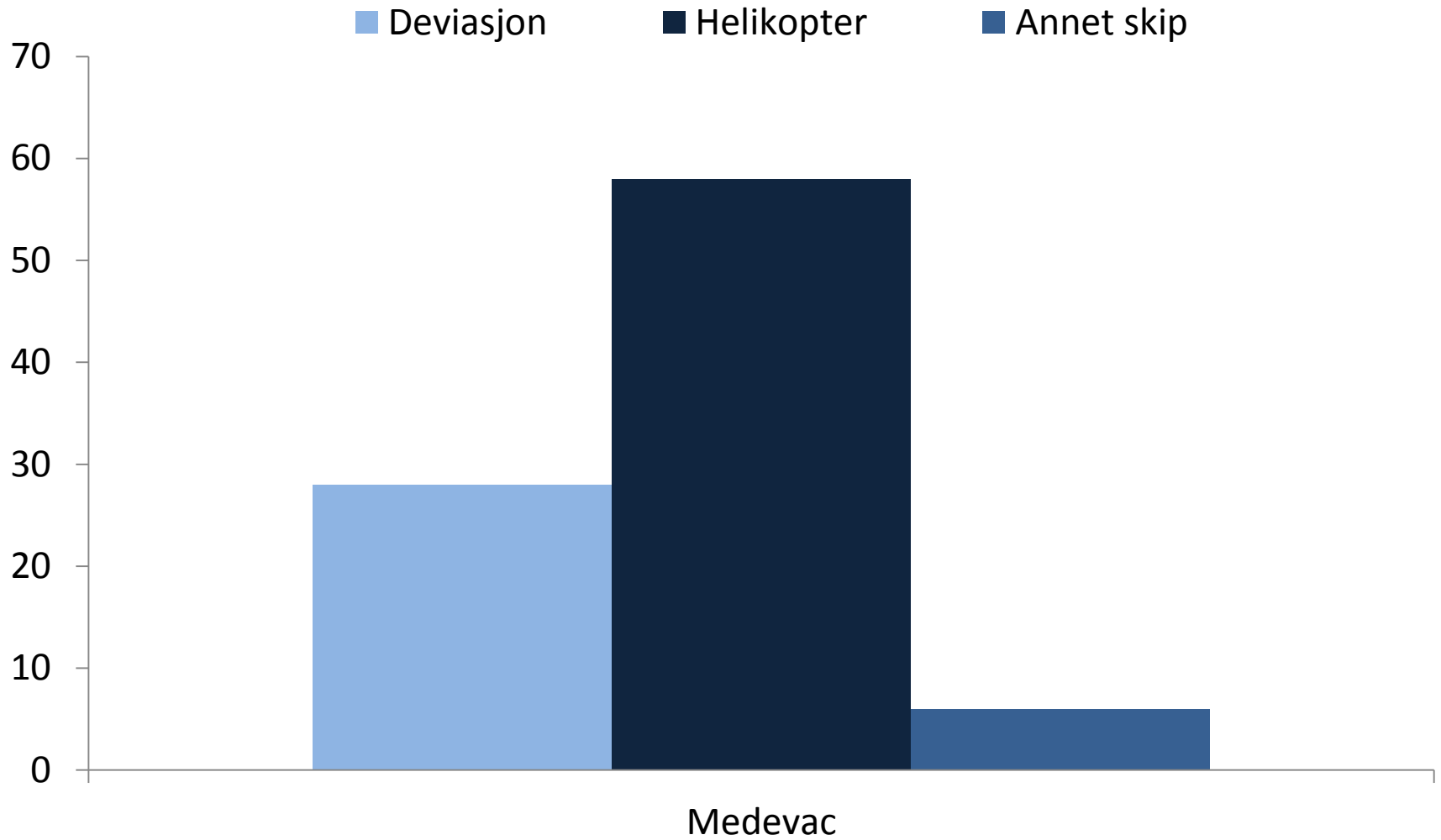
# Yrkesskader



# Yrkessykdom

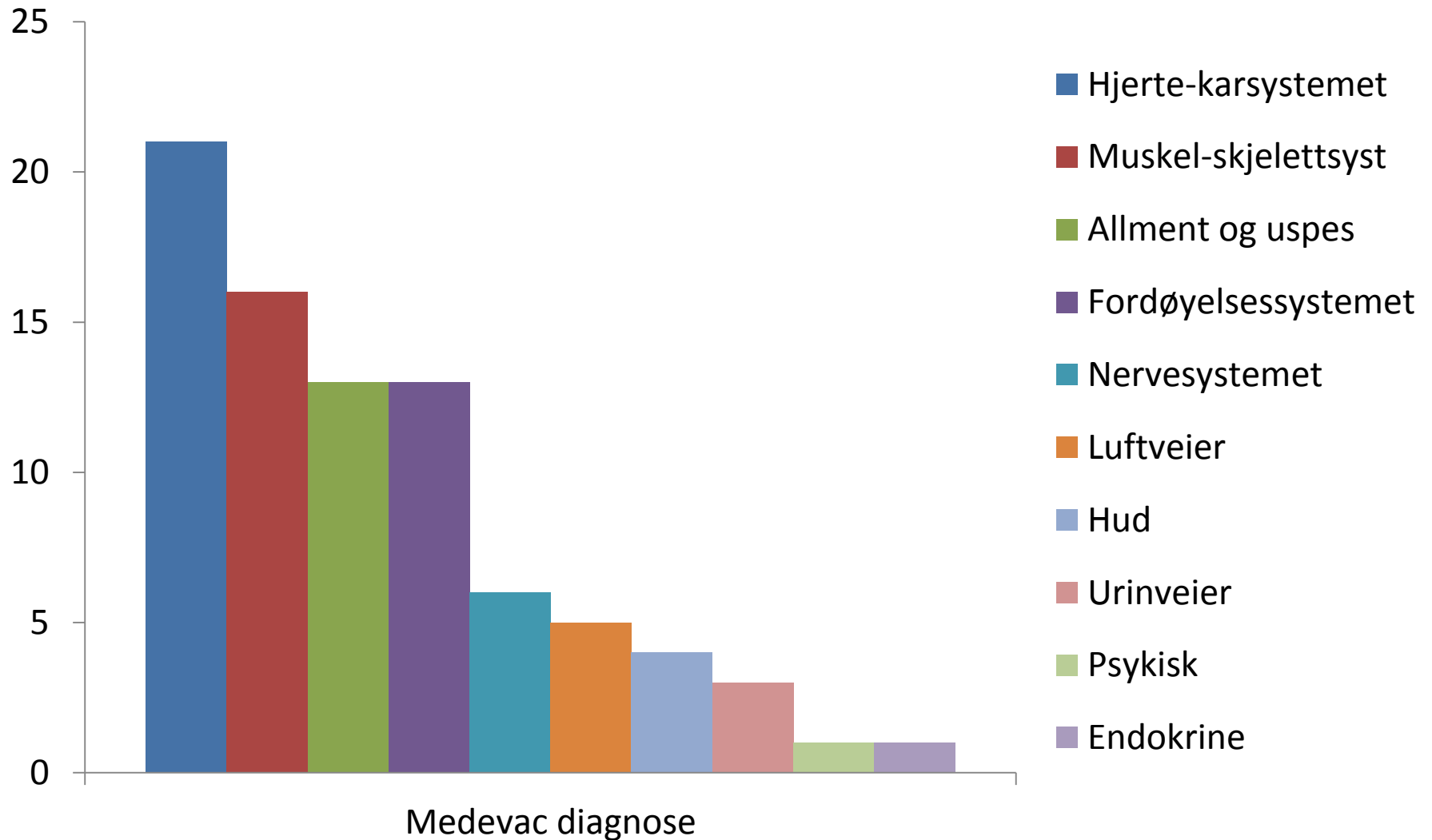


# Medevac





# Medevac-diagnose



# Additional services

- Training with vessels



**Radio Medico Norway**

30. oktober kl. 01:40 · 🌐

Today the future navigators at "Buskerud and Vestfold University College" exercises with Radio Medico <https://t.co/8QUyHPGzyi>



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# Additional services

- Training remote practitioners

## About the course – Aims:

- The course is a interactions course to make sure that the cooperation between you and the RMN doctors on shore will be as good as possible. The main focus is on procedures for medical communication.
- How do we move information, and how do we communicate so everyone involved in the treatment of the patients has a common and correct clinical picture of the patient, the treatment and the situation?





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# Additional services - system check

## RMN Evaluation Sheet – Videoconsultation



This evaluation sheet is used by Radio Medico for internal evaluation in order to improve, and as feedback to on board medical installations, about how we experience the quality of the telemedical system in use. If you receive this and have revised the test differently or have comments or questions, please give us your feedback.

### Evaluation criteria

- N/A** – Not available/tested
- U** – Unsatisfactory, connected but with quality not suitable for diagnostics or treatment purposes
- S** – Satisfactory, quality good enough to give added diagnostic value to the consultation, but better quality or real time transfer would provide even more/better information.
- G** – Good quality, suitable for diagnostic purposes and treatment without any identified medical value by increasing quality.

### Name of ship/installation and position

██████████ West of Sri Lanka, Approx. 8-10 NM NNW of Combo

### On board equipment

Cinco VTC System  
 Electro medical equipment  
 Digital X-ray, Ultrasound, ECG, ~~Multimonitor~~, Digital Stethoscope (Littman), Digital Othoscope.

### Date for testing

20150612 1030 UTC+1

### Purpose of test

Test after ██████████ experienced trouble calling out.

### Connection **G**

Connection was established and consultation conducted without loss of connection. Initial some background noise from the Coastal radio because mic was not muted.

### Video/Sound/Shared desktop **G**

Video and sound quality was good. RMN was not able to control camera on board. The ship was able to share desktop but text of small icons were unreadable.

### Electromedical equipment

Movement in the picture decreased the quality received. This makes for instance quality of received ultrasound video harder to read than the X-Ray.

### Ultrasound **S**

Shared by ~~videofile~~, from unit to shared desktop (not realtime). Test of Heart apex. Readable, but with lack of details.

### X-Ray **G**

Shared by ~~picturefile~~, from unit to shared desktop (not realtime). Two pictures transferred Normal hand and Ulna fracture. Both clear and very readable.

### ECG **S**

Shared by ~~picturefile~~, from unit to shared desktop (not realtime). Normal ECG. Readable, but not very good resolution. Transfer by mail would probably be better.

### Monitor **N/A**

### Stethoscope **S**

Not possible for us to receive as end to end communication. Shared by ~~squodfile~~, from unit to shared desktop (not realtime). Sound of normal heart apex. Some background noise, but probably possible to hear abnormal heart sound.

### Othoscope **S G**

Shared realtime, trough shared desktop and by ~~picturefile~~, from unit to shared desktop (not realtime) and e-mail. Several pictures. Real time picture was low resolution and resolution was very sensible to movement of camera. Quality improved when shared as still picture over shared desktop. Out of 3 pictures one was good, one was ok, and one was hard for us to read. Shared over mail, all three were very good.

- Norske sjømenn ikke flinkest i klassen
- Norske STCW kurs kortere enn IMO modellkurs
- Revisjon av IMO 1.15 kurset
  - 7 dager
  - 50/50 praksis og teori
- Repetisjonskurs
  - Øve om bord mellom repetisjonskurs



- 2000 leger på kurs siste 2 år, Sjømanns og petroleumsleger.
- Ankenemden for Sjømenn
- Undervisning og rådgivning
- Forskning





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